

## REMARKS

Prior to this Response, claims 1-6 were pending in the case. Claim 1 has been amended, claim 5 has been cancelled, and claims 7-10 have been added. Thus, claims 1-4 and 6-10 are pending in the case.

### Specification and Drawings

Applicants' representative and the Examiner discussed the drawings during the telephone interview. The substitute specification has been amended at page 4 to clarify that Fig. 2 is a schematic view showing the flexible printed circuit board of the present invention and a method for a fatigue test of the flexible printed circuit board of the present invention. Fig. 1 shows an example of the flexible printed circuit board of the present invention as well as layers of a conventional flexible printed circuit board. However, Fig. 1, to the extent that it pertains to the conventional art, does not show the inventive subject matter of the present invention, such as an adhesive layer having a higher glass transition temperature than an operating temperature of the flexible printed circuit board. Further comments in response to the objections to the drawings are provided in the Response to the Final Office Action.

Because Figs. 1 and 2 show an example of the present invention, the objection to the drawings entered in the final Office Action should be withdrawn. Furthermore, Applicants confirm that the Fig. 3 provisionally submitted with the Response to the Final Office Action should not be added. Please cancel Fig. 3.

### Claims

Applicants' representative and the Examiner discussed the claims and the cited references of Gurrie et al. and Noda et al. during the telephone interview. Claim 1 has been amended to include claim 5, and claim 5 has, accordingly, been cancelled. Claim 7 has been added which corresponds to claim 1 prior to this amendment combined with claim 6. Claims 8, 9, 10 correspond to originally filed claims 2, 3, 4, respectively, and depend from claim 7.

As discussed during the telephone interview, Gurrie et al. and Noda et al., individually or in combination, do not disclose or suggest Applicants' invention as claimed in claims 1 and 7. Gurrie et al. and Noda et al. do not disclose or suggest a flexible printed circuit board having an adhesive layer which has a higher glass transition temperature than an operating temperature of the flexible printed circuit board, wherein a reciprocation number N indicating a bending life of

the flexible printed circuit board is at least ten million times at 60°C. Also, Gurrie et al. and Noda et al. do not disclose or suggest a flexible printed circuit board having an adhesive layer which has a higher glass transition temperature than an operating temperature of the flexible printed circuit board, wherein a reciprocation number N indicating a bending life of the flexible printed circuit board is between a million times and ten million times at 80°C. Indeed, Noda et al. shows and describes a printed circuit board which has a center layer 5 of glass fiber woven cloth impregnated with resin. The glass fiber woven cloth impregnated with resin serves to prevent the Noda et al. laminate from having much flex so that the laminate holds a bent shape when subject to high temperatures, such as the temperatures during automatic soldering (see Noda et al., column 2, line 63-column 3, line 2). The desired bent characteristic or shape of the glass fiber woven cloth laminate of Noda et al. is shown in Figs. 2a and 2b. Noda et al. seeks to maintain the bent shape shown in Figs. 2a, 2b at high temperatures by using the glass fiber woven cloth impregnated with resin rather than seeking to obtain the remarkably high reciprocation flex life of Applicants' flexible printed circuit board.

Thus, Applicants respectfully submit that the application is in condition for allowance and request a notice of allowance be issued.

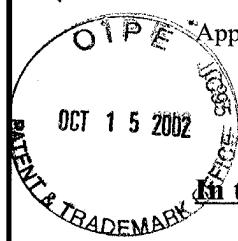
Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with Markings to Show Changes Made.**"

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY   
Michael S. Leonard  
Reg. No. 37,557  
P.O. Box 1135  
Chicago, Illinois 60690-1135  
Phone: (312) 807-4270

Date: October 10, 2002



Appl. No. 09/844,097

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Substitute Specification:**

The Substitute Specification has been amended on page 4, lines 13 and 14 as follows:

Fig. 2 is a schematic view showing the FPC of the present invention and a method for fatigue test of the FPC of the present invention.

**In the Claims:**

Claim 5 has been cancelled without prejudice.

Claim 1 has been amended as follows:

1. (Twice Amended) A flexible printed circuit board comprising a base film; a base film side adhesive layer provided on the base film; a metal foil layer on which pattern circuit is formed, provided on the base film side adhesive layer; and a cover layer side adhesive layer provided on the metal foil layer,

wherein at least one of the base film side adhesive layer and the cover layer side adhesive layer has a higher glass transition temperature than an operating temperature of the flexible printed circuit board, and

wherein a reciprocation number N indicating a bending life of the flexible printed circuit board is at least ten million times at 60°C.

Claims 7-10 have been added as follows:

7. A flexible printed circuit board comprising a base film; a base film side adhesive layer provided on the base film; a metal foil layer on which pattern circuit is formed, provided on the base film side adhesive layer; and a cover layer side adhesive layer provided on the metal foil layer,

wherein at least one of the base film side adhesive layer and the cover layer side adhesive layer has a higher glass transition temperature than an operating temperature of the flexible printed circuit board, and

wherein a reciprocation number N indicating a bending life of the flexible printed circuit board is between a million times and ten million times at 80°C.

8. A flexible printed circuit board according to claim 7, wherein the glass transition temperature is 60°C or higher.
9. A flexible printed circuit board according to claim 7, wherein the glass transition temperature is 80°C or higher.
10. A flexible printed circuit board according to claim 7, wherein at least one of the base film side adhesive layer and the cover layer side adhesive layer is made of an epoxy resin adhesive.